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THE EARLIEST NAME OF THE SNOWBERRY.

SIDNEY F. BLAKE.

FOR more than a century the ornamental shrub cultivated in gardens under the name of Snowberry has been almost universally known by the name *Symporicarpos racemosus* given it by Michaux¹ in 1803. Nevertheless the species had been described by Linnaeus² half a century before in the first edition of the *Species Plantarum* as *Vaccinium album*, a name based solely on specimens collected by Kalm in Pennsylvania and preserved in the Linnaean Herbarium and in the British Museum. The specific name and character remained unchanged through the various editions of the *Species Plantarum*, and the Linnaean diagnosis is repeated without remark in the thirteenth, fourteenth, and fifteenth editions of the *Systema*. Meanwhile Lamarck³ in 1783 took up the name for the plant now known as *Vaccinium canadense* Richardson,⁴ of which he was the first to publish a description. Pursh⁵ described under the same name a form of *Vaccinium stamineum* L., and was followed in this error by Sprengel⁶ in the sixteenth edition of the *Systema*. Then in 1834 G. Don,⁷ ap-

¹ Mx. Fl. Bor.-Am. i. 107 (1803).

² L. Sp. Pl. i. 350 (1753).

³ Lam. Ency. i. 73 (1783).

⁴ Commonly accredited to "Kalm ex Richardson," but the original description, as well as the type specimens in the British Museum, clearly shows that Kalm had nothing to do with the name. *V. vacillans* "Kalm ex Torr." is in somewhat similar case; as shown by Britten (Journ. Bot. xlii. 55 (1905)), Kalm, although quoted as its author by Torrey in the original publication, had no connection whatever with the name, Solander, who was not mentioned by Torrey and so cannot be quoted as author of the species, having been the real name of the plant, which should be called *V. vacillans* ['"vacillans"] Torr.

⁵ Pursh, Fl. Am. Sept. i. 162 (1814).

⁶ Spreng. Sys. ed. 16, ii. 210 (1825).

⁷ G. Don, Gen. Hist. iii. 448, 853 (1834).

parently influenced by a note of Smith's on the sheet in the Linnaean Herbarium, identified the name with Pursh's¹ *Xylosteum ciliatum* *β. album*, described as new from specimens collected "on the Rocky-mountain" by Lewis, which according to Nuttall² is "*Syphoria racemosa* of Michaux,"³ now cultivated in several gardens near Philadelphia from seeds collected by the late governor Lewis." Later authors, such as Gray,⁴ Britton and Brown,⁵ and the Index Kewensis, have been content to refer the Linnaean *Vaccinium album* to *Lonicera ciliata* Muhl. (= *L. canadensis* Marsh.) itself, and the combination *Lonicera alba* (not of L. Sp. Pl., which is *Chiococca alba* (L.) Hitchc.) has recently been made on purely synonymic grounds by Druce,⁶ without reference to the easily accessible Linnaean type.

The type specimen in the Linnaean Herbarium represents the typical form of *Syphoricarpos racemosus* Mx., which, as shown by Fernald⁷ some years ago, is not the ordinary glabrous-leaved garden plant as had long been supposed, but the more common eastern form with leaves densely pilose, and somewhat paler but not whitened, on the under surface. On the sheet is written in Linnaeus' hand "4 album K"; in pencil in an early hand (not known to Mr. B. D. Jackson, who kindly examined it) is the note "baccis albis," from which Linnaeus evidently drew his specific name; J. E. Smith has signified his opinion that the plant is a *Lonicera*; and Gray has marked it *Syphoricarpos racemosus*, although he never published this determination, but still referred it to *Lonicera ciliata* when last writing on it in 1878. The Snowberry must accordingly drop the name it has borne so long and be called

SYMPHORICARPOS albus (L.) Blake, n. comb. *Vaccinium album* L. l. c. (1753). *Syphoricarpos racemosus* Mx. l. c. (1803); Fernald, l. c. (1905). *Lonicera racemosa* (Mx.) Pers. Syn. i. 214 (1805). *Syphoria racemosa* (Mx.) Pursh, l. c. (1814). *Syphoria leucocarpa* Hort., *S. heterophylla* Presl, & *S. elongata* Presl, in DC. Prod. iv. 339 (1830), as syn. *Syphoria albus* Raf. New Fl. iii. 21 (1836). *Syphoricarpos albus* "Raf." K. Koch, Dendr. ii. pt. 2. 407 (index) (1873).

¹ Pursh, Fl. Am. Sept. i. 161 (1814).

² Nutt. Gen. l. 138 (1818).

³ This was the form used by Pursh (Fl. i. 162), not Michaux.

⁴ Gray, Syn. Fl. ii. pt. i. 201 (1878).

⁵ Britton & Brown, Ill. Fl. iii. 241 (1898).

⁶ Bot. Exch. Club Rept. 1913. iii. pt. 5. 420 (1914).

⁷ Fernald, RHODORA vii. 164-167 (1905).

(*Symphoria albus* [a] Raf. l. c. is a nomen nudum, applied to the Snowberry quite without reference to *V. album* L., and *Symporicarpos albus* Koch occurs only as a pure synonym of *S. racemosus*, so treated by Koch himself (and wrongly ascribed to Rafinesque), likewise having no connection with the name *Vaccinium album* L.). *Lonicera alba* (L.) Druce l. c. (1914), as to name only.

S. ALBUS var. **pauciflorus** (Robbins) Blake, n. comb. *Symporicarpos racemosus* var. *pauciflorus* Robbins in Gray, Man. ed. 5, 203 (1867), in part; emend. Fernald, l. c. *Symporicarpos pauciflorus* (Robbins) Britton, Mem. Torr. Club. v. 305 (1894), in part.

S. ALBUS var. **laevigatus** (Fernald) Blake, n. comb. *Symporicarpos racemosus* var. *laevigatus* Fernald, l. c. 167 (1905). *S. racemosus* of most auth., not Mx.

LONDON, ENGLAND.

THE GENUS RUPPIA IN EASTERN NORTH AMERICA.

M. L. FERNALD AND K. M. WIEGAND.

(Plate 110.)

DURING our field-work of 1911, a tiny *Ruppia* was collected in tidal pools at Norris Arm in eastern Newfoundland, which differed very strikingly from the ordinary plant which we had known as *R. maritima*. Later, after our return from Newfoundland, somewhat similar, but in some characters quite different, material, collected as an unusual plant by Dr. B. M. Duggar on Naushon Island, was referred to us for study; and in the explorations of Prince Edward Island and the Magdalen Islands by Messrs. Fernald, Long and St. John a special point was made of watching *Ruppia*, with the result that they got several extreme plants such as we rarely see on the Atlantic coast of the United States. Examination of these plants and the material in the Gray Herbarium, the herbarium of the Academy of Natural Sciences of Philadelphia, and the herbarium of the New England Botanical Club, in the light of the recent treatments of the genus in Europe shows that we have in America many more well defined forms of *Ruppia* than has been generally supposed and that, to a great extent,

our treatments of the group have depended more upon traditional interpretations than upon close study of the plants in the field.

In Europe, *Ruppia maritima* has long been considered the type of a somewhat complex group of species, subspecies and varieties. By many authors of the present day four species, *R. maritima* L. in the strict sense (*R. spiralis* Dumort.), *R. drepanensis* Tineo, *R. rostellata* Koch, and *R. brachypus* Gay, are recognized; while by others, Briquet, for instance, in his *Prodrome de la Flore Corse*, *R. maritima* is treated as the type of an aggregate species with well defined subspecies; and by Ascherson & Graebner, in Engler's *Pflanzenreich*, a somewhat similar course is followed, with a confusing division of subspecies, proles, and varieties.

In America the treatment has been more conservative, apparently too much so. Early writers, such as Michaux, noted some divergence in the American and European plants,¹ but all treated our eastern species as *Ruppia maritima*; and Nuttall in his description used a character which is by no means constant in American plants but is diagnostic of true *R. maritima* of Europe: "peduncle convolute-stretching or contracting according to the depth of water, after the manner of *Vallisneria*."² Gray stated, however, simply that "the spadix itself also [after flowering is] raised on an elongated thread-form peduncle,"³ and in the description of the species in northeastern America said: "chiefly a narrowly leaved var. with strongly pointed fruit, approaching *R. rostellata*, Koch." This statement stood in the Manual through five editions, but in the 6th edition, by Watson and Coulter, the reference to *R. rostellata* was dropped. In two recent American monographs of our *Najadaceae*, the spiraling peduncle again appears as a primary character. Thus in Morong's *Najadaceae of North America*, under *R. maritima* we find: "In fruit the peduncles are greatly elongated, sometimes as much as 12 inches or even more . . . The drupes vary a good deal in shape, usually simply conical with a short gibbous swelling at the base, sometimes with a strong spur-like projection and a curved outline, as in the form known in Europe as *R. rostellata*, Koch, which does not, however, differ otherwise from the type. Specimens with fruit of this shape are sent from

¹ "Obs. Mea cum Europaea omnino convenit; in eo tamen differens (si qua fides iconi optimi Gaertneri) quod fructus ovoidens sit et in colliculum a stylo persistente destinat." — Michx. Fl. Bor.-Am. i. 102 (1803).

² Nutt. Gen. i. 111 (1818).

³ Gray, Man. 454 (1848).

Oregon by Mr. Howell. Forms with fruit nearly destitute of peduncles and pedicels, and broad strongly marked sheaths, similar in these respects to *R. brachypus*, Gay, occur at Wood's Hole, Mass., and at other places along the Atlantic coast.¹ In the later monograph of the group, by Mr. Norman Taylor,² the American *R. maritima* is made to have "flowers on a short pedicel which elongates after anthesis, and is ultimately a loosely coiled spiral," the fruit is defined as "ovoid, equilateral, or gibbous and oblique, . . . style short and stout, or finely attenuate, straight or hooked; pedicels of the fruit 1.3–3 cm. long"; no mention being made either of *R. rostellata* or of the plant from Wood's Hole and "other places along the Atlantic coast" which Morong described as "nearly destitute of peduncles and pedicels."

These very diverse treatments of *Ruppia maritima* by different students in Europe and America have led the writers, as already stated, to study with some care the available American material in its relation to the European. The American plants fall readily into the two groups including *R. occidentalis* Watson on the one hand and on the other the mass of material which has passed as *R. maritima*; and in the present notes we will deal only with the latter plants and more especially with those which occur in the Northeast.

In the first place, we can find among eastern specimens none which agree with *Ruppia maritima* as interpreted by such English authors as Britten and Rendle or Druce; or with *R. maritima*, subsp. *spiralis* of Graebner and of Briquet. This plant, which Briquet speaks of as "*R. maritima* L., sensu stricto," has the peduncle after anthesis becoming very elongate and spirally twisted at base, and the ovoid slightly oblique gradually attenuate or bluntish fruiting carpels on podogynes 4–10 times as long. The only North American material which satisfies these requirements and matches closely the Old World specimens and plates in its long spiraling peduncles and subequilateral bluntish fruit is from the extreme West. Material from Clear Lake, California, collected by Dr. Ayres seems to us quite like the true *R. maritima* of Europe. On the Atlantic coast, however, from Newfoundland to South America and locally on the Pacific coast, there is a plant with long spiraling peduncles, as in the European *R. maritima*, but with the fruit very oblique or semilunate and prominently beaked as in the short-peduncled *R. rostellata* Koch (*R. maritima*, var. *rostrata*

¹ Morong, Mem. Torr. Bot. Cl. iii. no. 2, 55, 56 (1893).

² N. Taylor, N. A. Fl. xvii. 14 (1909).

Agardh). But with this characteristic fruit-form it cannot be satisfactorily placed with typical *R. maritima*, and with its long spiraling peduncle it is not referable to *R. maritima*, var. *rostrata* which it simulates in fruit. This long-peduncled plant is *R. maritima* var. *longipes* Hagström. Another common plant of North America, of possibly wider range than var. *longipes* is a very close match for the Old World material and plates of *R. maritima*, var. *rostrata* Agardh (*R. rostellata* Koch), having the semilunate strongly beaked fruit on long podogynes, but the peduncle only 1-3 cm. long and merely flexuous, not spiraling. This and the American plant with long spiraling peduncles (var. *longipes*) clearly intergrade; but so emphatic are the students of the group in Europe, that there *R. rostellata* never has elongate and spiraling peduncles, while the true *R. maritima* with subequilateral bluntnish, not semilunate or eccentrically beaked, fruit always has such peduncles, that it seems right to follow Hagström in separating the var. *longipes*.

This plant, var. *longipes*, simulating as it does true *R. maritima* (or *spiralis*) in its habit, but var. *rostrata* (*R. rostellata*) in its fruit, shows a characteristic which seems to pervade the entire series: namely, a strong tendency for the various characters of fruit and length of peduncle and of podogyne to reassert themselves in new combinations. It is doubtless this fact which has led to the ultra-conservative treatment in America which has heretofore made little or no attempt to define the various combinations of characters; but it is certainly most unsatisfactory, when we find in some of the natural areas of our coast a plant with peduncles uniformly less than 5 mm. long and podogynes essentially wanting, to be forced, on referring to an American monograph, to crowd it into a species which is said to have the peduncle "a loosely coiled spiral."

Our study of *Ruppia maritima*, though by no means satisfactory to us, has shown that we have in North America several clearly definable variants or recombinations of the variable characters. Whether these or any of them should be regarded as species is a debatable question, but our present feeling is that they are best regarded as varieties. For the present we are so considering them and we offer the following synopsis, not with any assurance of its finality but with the hope that it will lead to the fuller and more critical observation and collection which the plants demand; and we are indebted to Mr. F. Schuyler Mathews for his assistance in preparing drawings to illustrate the plants discussed.

A. Carpels ovoid, slightly oblique but not strongly eccentric nor curved, bluntnish or not tapering to a conspicuous beak.

Peduncles in maturity 1–3 dm. long, strongly spiraling toward the base: podogynes 0.7–3 cm. long 1. *R. maritima*

Peduncles in maturity less than 6 cm. long, rarely spiraling.

Peduncles 1.5–6 cm. long: podogynes 0.6–2.5 cm. long.

2. var. *obliqua*

Peduncles 2–10 mm. long: podogynes 1–6 mm. long.

Podogynes distinctly longer than the carpels. 3. var. *intermedia*

Podogynes shorter than or about equaling the mature carpels.

4. var. *brevirostris*

A. Carpels strongly eccentric and distinctly beaked, or semilunate or curved.

Mature carpels 2–3 mm. long, shorter than the mostly elongate podogynes.

Mature podogynes 1–6 cm. long.

Mature podogynes 3–6 cm. long: peduncles long and spiraling.

5. var. *curvicerca*

Mature podogynes 1–3 (rarely 3.5) cm. long.

Peduncles in maturity 3–30 cm. long, spiraling or flexuous.

6. var. *longipes*

Peduncles in maturity 0.5–3 cm. long, not spiraling.

7. var. *rostrata*

Mature podogynes 2–6 mm. long.

Mature peduncles 3–7 cm. long 8. var. *onondagensis*

Mature peduncles 0.5–1.5 cm. long 9. var. *subcapitata*

Mature carpels 1.5 mm. long, exceeding the very short podogynes.

10. var. *exigua*

1. *RUPPIA MARITIMA* L. Sp. Pl. i. 127 (1753). *R. spiralis* Dumort. Fl. Belg. 164 (1827). *R. maritima*, var. *spiralis* Moris, Stirp. Sard. Elench. i. 43 (1827). *R. maritima*, subsp. *spiralis* Aschers. & Graebn. Syn. i. 356 (1897) and in Engler, Pflanzenr. iv. fam. 11, 142 (1907); Briquet, Prod. Fl. Corse, i. 56 “ = *R. maritima* L., sensu stricto” (1910).—Common in Europe and in parts of Africa and Australasia, and said by Ascherson and Graebner to be “in Nord- und Südamerika verbreitet.” We have seen American material which seems referable to true *R. maritima* only from CALIFORNIA: Clear Lake, Ayres. FIGS. 1 and 2.

2. Var. *OBliqua* (Schur) Aschers. & Graebn. Syn. i. 357 (1897) and in Engler, l. c. 145 (1907). *R. obliqua* Schur ex Griseb. & Schenk, It. Hungar. in Wieg. & Erisch. Arch. xviii, 355 (1852). *R. transsilvanica* Schur, Österr. bot. Zeitschr. x. 356 (1860).—Southeastern Europe. Authentic specimens fairly matched by material from the Magdalen Islands and Prince Edward Island. MAGDALEN ISLANDS: brackish or saline pools in the salt marsh near East Cape, Coffin Island, *Fernald*, *Long* & *St. John*, no. 6795. PRINCE EDWARD ISLAND: saline water of South Lake and adjacent pools, Bothwell, *Fernald*, *Long* & *St. John*, no. 6800. FIGS. 3 and 4.—Rydberg's *R. pectinata*, Mem. N. Y. Bot. Gard. i. 18 (1900) from Yellowstone

Park may belong here: it is described as having "peduncles 3-5 cm. long, . . . not spirally curved; . . . fruit ovoid, 1.5 mm. long, with an almost sessile stigma." The two specimens in the Gray Herbarium marked by Rydberg "*R. pectinata*" fail to meet these requirements: one, from Clear Lake, California, has the peduncles very long and extremely spiraled and is referred by us to typical *R. maritima*; the other, from Seattle, Washington, has the peduncles 3-7 mm. long and is nearest var. *intermedia*.

Var. *obliqua* seems to stand to true *R. maritima* in much the same relation as does var. *rostrata* to var. *longipes*. The Magdalen Island material, as stated, is very well matched by authentic Transylvanian material; but the Prince Edward Island specimens show an approach to var. *rostrata*. In the Magdalen Islands var. *obliqua*, which is best distinguished from var. *rostrata* by its plumper shorter-beaked and scarcely lunate fruit, occupies some of the brackish pools on Coffin Island, while adjacent pools of the same depth and with no obvious difference in their conditions are filled by var. *brevirostris*. So far as yet known these saline pools of Coffin Island and some of the salt ponds of Prince Edward Island, are the only American localities for these two varieties of *Ruppia*; while neighboring sands and fresh-water pools have some other European species or varieties in different groups, which are known from no other American region.

3. Var. **INTERMEDIA** (Thedenius) Aschers. & Graebn. *Syn. i.* 358 (1897) and in Engler, *l. c.* (1907). *R. intermedia* Thedenius, *Bot. Not.* (1887) 83. *R. maritima*, subsp. *brachypus*, form, Schlegel in *Hartm. Skand. Fl.* ed. 12, 57 (1889).—European specimens referred here are fairly well matched by material from Washington and California. WASHINGTON: Seattle, *Piper*, no. 2863. CALIFORNIA: Panamint Valley, *Coville & Funston*, no. 683 (*Phil. Acad.*). FIGS. 5 and 6.

4. Var. **BREVIROSTRIS** Agardh in *Physiogr. Sällsk. Årsbetr.* 6 Maj (1823) 37. *R. maritima*, var. *recta* Moris, *Stirp. Sard. Elench.* i. 43 (1827). *R. brachypus* Gay in *Coss. Notes quelq. pl. Crit.* i. 10 (1848). *R. rostellata* β *brachypus* Marsson, *Fl. Neuropomm.* u. *Rüg.* 498 (1869). *R. maritima*, var. *brachypus* Schlegel in *Hartm. Skand. Fl.* ed. 12, 57 (1889). *R. maritima*, subsp. *rostellata*, C. *brevirostris* Aschers. & Graebn. *Syn. i.* 358 (1897). *R. maritima*, subsp. *rostellata*, *proles brevirostris* Aschers. & Graebn. in Engler, *l. c.* (1907). *R. maritima*, subsp. *brevirostris* Briq. *Prod. Fl. Corse*, i. 57 (1910).—Europe and northern Africa. Apparently rare in North America; known to us only from the MAGDALEN ISLANDS: brackish or saline pools in salt marsh near East Cape, Coffin Island, *Fernald, Long & St. John*, no. 6797. See note under var. *obliqua*. FIGS. 7 and 8.

5. Var. **curvicarpa** (A. Nelson), n. comb. *R. curvicarpa* A. Nelson, *Bull. Torr. Bot. Cl.* xxvi, 122 (1899). *R. maritima*, subsp. *spiralis*,

proles *γ. curvicarpa* Graebner in Engler. Pflanzenr. l. c. 144 (1907).
WYOMING: Laramie Alkali Lakes, Nelson. FIGS. 9 and 10.

6. Var. **LONGIPES** Hagström, Botaniska Notiser (1911) 138.—There can be no doubt that, although using the name *R. maritima* in the sense of *R. rostellata* Koch (not of *R. spiralis* Dumort), Hagström had the plant which is common, especially in Atlantic waters, in North America. His description clearly indicates this: “The European forms of **R. maritima** usually have rather short peduncles. A form from *Asia* gathered by Ove Poulsen at Buchara, in a saline pond, in 1898 (12,183), however, has somewhat longer peduncles (3–6 cm. or more). We propose to name it **var. longipes**. In the United States of America this variety seems to be the commonest *Ruppia*. It appears in two forms: one with more prominent, thin beak, **forma aculeata** n. f., belonging chiefly, as I think, to the eastern States, and the other ‘with an almost sessile stigma’ (Rydberg, l. c.), spreading westward: **forma pectinata** (Rydb., as sp.).” Of *forma pectinata* we have little knowledge except the specimens referred to under *R. maritima*, var. *obliqua*. Our common plant with peduncles sometimes reaching a length of 3 dm. is Hagström’s *forma aculeata*. The following from the numerous specimens may be cited. NEWFOUNDLAND: Killigrew’s, *Fernald & Wiegand*, no. 4496. NOVA SCOTIA: Sable Island, St. John. MAINE: Phippsburg, *Kate Furbish*; Wells Beach, *Parlin & Fernald*. MASSACHUSETTS: Secachacha Pond, Nantucket, F. S. *Collins*. NEW JERSEY: Atlantic City, *J. Carson* (Phil. Acad.); Ventnor, *T. S. Giihens* (Phil. Acad.); Cold Spring, Cape May Co., and Lily Pond, Cape May Point, *S. S. Van Pelt* (Phil. Acad.). DELAWARE: Rehobeth and Collins Beach, *A. Commons* (Phil. Acad.). MARYLAND: Mouth of Bush River, *G. H. Shull*; Tolchester Beach, *C. S Williamson* (Phil. Acad.). FLORIDA: Alligator Bay, Monroe Co., *A. A. Eaton*, no. 1371; Manatee, *Tracy*, no. 6804. TEXAS: *Berlandier*, no. 3221. CALIFORNIA: Monterey, *G. P. Snell* (Phil. Acad.). BERMUDA ISLANDS: Shelly Bay, *F. S. Collins*, no. 320. BAHAMA ISLANDS: Great Guana Cay, *Britton & Millspaugh*, no. 2899. GUADELOUPE: *Père Duss*, no. 3935. FIGS. 11 and 12.—Clearly an extreme of the series represented by var. *roststrata* (*R. rostellata* Koch), and without question passing to it in our waters.

7. Var. **ROSTRATA** Agardh in Physiogr. Sällsk. Årsbetr. 6 Maj. (1823) 37. *R. maritima*, var. *minor* Mert. & Koch, Deutschl. Fl. i. 861 (1823). *R. rostellata* Koch in Reichenb. Pl. Crit. ii. 66, t. 174, fig. 306 (1824); Gray Man. 454 (1848); Morong, Mem. Torr. Bot. Cl. iii. no. 2, 56 (1893). *R. maritima*, subsp. *rostellata* Asch. & Graebn. Syn. i. 356 (1897) and in Engler, l. c. 144 (1907); Briquet, l. c. 56 (1910). *R. maritima* Schlegel in Hartm. Handb. Skand. Fl. ed. 12, 57 (1889); Hagström, Botaniska Notiser (1911) 137.—Widely dispersed in Eurasia and Africa and Southern and Eastern Asia; widely distributed in temperate and tropical waters of North and South America. The

following from a large series of North American specimens are characteristic. QUEBEC: York, Gaspé Co., *Collins, Fernald & Pease*. PRINCE EDWARD ISLAND: Rocky Point, and Bunbury, *Fernald, Long & St. John*, nos. 6798 & 8316. NEW BRUNSWICK: Bathurst, *S. F. Blake*, no. 5485. MAINE: Perry, *Fernald*, no. 1627; Little Cranberry Island, *Redfield*; Brunswick, *Kate Furbish*; Wells Beach, *Parlin & Fernald*. MASSACHUSETTS: Revere, *W. P. Rich*; North Cohasset, *Miss K. Parsons*; Truro, *W. P. Rich*; Orleans, *J. Murdoch, Jr.* RHODE ISLAND: Tiverton, *J. C. Phillips*. NEW JERSEY: Anchoring Island, New Inlet, Ocean Co., *B. Long* (Phil. Acad.); MARYLAND: Chester River, Queen Anne Co., *E. G. Vanetta* (Phil. Acad.). FLORIDA: *Rugel*. WYOMING: Salt Creek, *A. Nelson*, no. 2557. BRITISH COLUMBIA: Victoria, Vancouver I., *J. Macoun*, no. 4505. WASHINGTON: Seattle, *E. C. Smith & C. V. Piper*, no. 763. CALIFORNIA: Panamint Valley, *Coville & Funston*, no. 729. MEXICO: Manzanillo, *E. Palmer*, no. 1042. FIGS. 13 and 14.

8. Var. **onondagensis**, n. var., var. *rostratae* similis; pedunculis post anthesin 3-7 cm. longis; podogynis 2-6 mm. longis; carpellis maturitate 2-3 mm. longis ovoideo-semilunatis, basi gibbosis, apice valde et subobliquae rostratis.

Similar to var. *rostrata*: peduncles after anthesis 3-7 cm. long: podogynes 2-6 mm. long: carpels in maturity 2-3 mm. long, ovoid-semilunate, gibbous at base, conspicuously and subobliquely beaked.—NEW YORK: Onondaga Lake, 1864, *J. A. Paine* (TYPE in Gray Herb.); August 15, 1880, *W. R. Dudley*.—Of the twenty-two mature fruits examined twenty-one have characteristically short podogynes, only one having the podogyne elongated nearly to 1 cm. in length and thus approaching the less characteristic specimens of the coastal plant, var. *rostrata*. FIGS. 15 and 16.

Var. *onondagensis*, though with the fruit of vars. *longipes* and *rostrata*, differs from both in its much shorter podogynes. From var. *rostrata* it is further distinguished by its longer peduncle, which, though flexuous, apparently does not spiral as in the long-peduncled var. *longipes*. From var. *subcapitata*, which is apparently frequent about the Gulf of St. Lawrence, it is at once distinguished by its long peduncle; but its podogynes and fruits so closely resemble those of the latter plant as to suggest that var. *onondagensis* is a derivative of the maritime var. *subcapitata* which has become slightly altered in its isolated inland habitat.

9. Var. **'subcapitata'**, n. var., var. *rostratae* similis; pedunculis post anthesin 0.4-1.5 cm. longis; podogynis 1-6 mm. longis; carpellis maturitate 2-3 mm. longis ovoideo-semilunatis, basi gibbosis, apice valde et subobliquae rostratis.

Similar to var. *rostrata*; the peduncles after anthesis 0.4-1.5 cm.

long; the podogynes 1–6 mm. long: fruiting carpels 2–3 mm. long, ovoid-semilunate, gibbous at base, prominently and subobliquely beaked.—Brackish or salt water, Quebec to Massachusetts. QUEBEC: Seven Islands, Saguenay Co., August 14, 1907, *C. B. Robinson*, no. 916. PRINCE EDWARD ISLAND: pools in salt marshes, Tignish, August 6, 1912, Bunbury, August 28, 1912, *Fernald, Long & St. John*, nos. 6799 (transitional to var. *rostrata*), 6796. MASSACHUSETTS: Salem, *J. L. Russell*; Mystic River Marshes, August 21, 1881, *F. S. Collins*; Hadley Harbor, Naushon Island, July, 1911, *B. M. Duggar* (TYPE in Gray Herb.). FIGS. 17 and 18.

Var. *subcapitata* in its short peduncles and podogynes closely simulates var. *brevirostris* but in the form of its fruit is much nearer var. *rostrata*. Most of the material (all from Massachusetts) has the podogynes less than 3 mm. in length; but one of the Prince Edward Island collections (no. 6799 from Tignish) has them longer (up to 6 mm.) and more slender, thus simulating var. *intermedia*. Its prominently beaked and semilunate fruit places it close to var. *subcapitata* and without the support of a larger suite of specimens it cannot well be given varietal separation.

10. Var. *exigua*, n. var., humilis repens; pedunculis 2–4 mm. longis; podogynis 0.5 mm. longis; carpellis maturitate; 1.5 mm. longis semilunatis prope erostratis.

Dwarf, repent: peduncles 2–4 mm. long: podogynes 0.5 mm. long: carpels 1.5 mm. long in fruit, semilunate, almost beakless.—NEWFOUNDLAND: shallow tidal pools in salt marsh, Norris Arm, August 21, 1911, *Fernald & Wiegand*, no. 4497. FIGS. 19 and 20.

In its tiny almost sessile essentially beakless fruit var. *exigua* suggests the most dwarfed extremes of var. *brevirostris*, but by the outline of the fruit it is clearly more related to vars. *rostrata* and *subcapitata*.

EXPLANATION OF PLATE 110.

Fruiting peduncles \times 1 and mature carpels \times 4. Figs. 1 and 2. *Ruppia maritima*, after Reichenbach, Ic. Crit. ii. t. 174; figs. 3 and 4, var. *obliqua*, from a Transylvanian specimen, coll. Janka; figs. 5 and 6, var. *intermedia*, Seattle, Washington, *Piper*, no. 2863; figs. 7 and 8, var. *brevirostris*, Coffin Island, Magdalen Islands, *Fernald, Long & St. John*, no. 6797; figs. 9 and 10, var. *curvicarpa*, Laramie Alkaline Lakes, Wyoming, *Nelson*, no. 2821 (cotype); figs. 11 and 12, var. *longipes*, Sasachacha Pond, Nantucket, Massachusetts, *Dame, Jenks & Swan*; figs. 13 and 14, var. *rostrata*, from the original figures of *R. rostellata* (Reichenb. Ic. Crit. ii. t. 174); figs. 15 and 16, var. *onondagensis*, Salina, New York, *J. A. Paine* (type); figs. 17 and 18, var. *subcapitata*, Naushon Island, Massachusetts, *B. M. Duggar* (type); figs. 19 and 20, var. *exigua*, Norris Arm, Newfoundland, *Fernald & Wiegand*, no. 4497 (type).

SOME INTERESTING COLOR FORMS.

ALBERT HANFORD MOORE.

THE author has long wondered that with some activity in recent years in the matter of naming color forms what is probably the most striking instance of the kind seems to have remained unchristened, namely the red-flowered *Pedicularis canadensis* L. It seems desirable to give it botanical standing.

Some of the most beautiful of our wild flowers are to be found among the rarer shades of flowers familiarly found in other colors, such, for instance, as the pink and white forms of *Hepatica* which were mentioned already in the writings of Prelinnaean authors. The *Hepatica* occurring also in Europe, where a more extensive literature on forms exists, it is not possible at this time to say what these should be called, but they have been described as forms. The names thus far known to the author are nomenclaturally incorrect, however. One of the most pleasing of the color variations is the pink Lupine. I have seen a large patch of sandy soil in Andover, Mass., bright with this charming plant, which is called *Lupinus perennis* L. f. *roseus* Britton.¹ In contrast to this is the white form, which the present author first observed growing near it, while the collector of the type specimen found it with the blue. This tricolor series is very frequent in species whose commonest form is blue.

While collecting in West Virginia I obtained a white variant of *Polygonum hydropiperoides* Michx. parallelling the white form of *P. Persicaria* L., called by Millspaugh in his flora of West Virginia² *P. Persicaria* f. *albiflora* Millsp.

The names of the forms mentioned above, then, are as follows:

PEDICULARIS CANADENSIS L. f. **praecolor** A. H. Moore, f. nov. *floribus rubris.*

Type specimen: MASSACHUSETTS, mixed woods, estate of Joseph Fay, Woods Hole, Falmouth, May 28, 1904 (A. H. Moore, no. 1670 in Herb. Moore).

LUPINUS PERENNIS L. f. **ROSEUS** Britton, Bull. Tor. Bot. Club, xvii, 124 (May 9, 1890) *floribus rubricundis.*

¹ Bull. Torr. Bot. Club, xvii, 124 (May 9, 1890). Britton truly describes them, when he says, "Flowers beautifully pink."

² W. Va. Agr. Exper. Sta. II (Bull. no. 24), 432 (June, 1892).

LUPINUS PERENNIS L. f. **albiracemus** A. H. Moore, f. nov. floribus albis.

Type specimen: ONTARIO, West Toronto Junction, June 3, 1893 (*Wm. Brodie*, in *Herb. U. S. Nat. Mus.*). "Isolated plants numerous with white flowers growing with great patches of the blue."

POLYGONUM PERSICARIA L. f. **ALBIFLORA** Millsp. W. Va. Agr. Exper. Sta. ii (Bull. no. 24), 432 (June, 1892) floribus albis.

POLYGONUM HYDROPIPEROIDES Michx. f. **leucochranthum** A. H. Moore, f. nov. floribus albis.

Type specimen: WEST VIRGINIA, Randolph County, clayey swamp, north bank of Tygart's Valley River, Huttonsville, Sept. 23, 1904 (*A. H. Moore*, no. 2507 in *Herb. Moore*).

WASHINGTON, D. C.

SOME ANTENNARIAS OF NORTHEASTERN AMERICA.

M. L. FERNALD.

DURING the fifteen years since our northeastern species of *Antennaria* received detailed study a vast amount of material has accumulated. For the most part this has fallen readily into the categories already defined; but a few plants, especially from eastern Quebec, Newfoundland and Labrador, are so different as to demand special attention. Two of these, *A. eucosma* Fernald & Wiegand and *A. alpina*, var. *cana* Fernald & Wiegand, have recently been defined;¹ but the following have not heretofore been worked out.

ANTENNARIA pygmaea, n. sp., nana 3–4.5 cm. alta monocephala humifusa, stolonibus assurgentibus perbrevibus haud elongatis; foliis basilaribus oblanceolatis mucronatis 8–14 mm. longis 2.5–3.5 mm. latis supra glabris vel glabratris subtus laxe lanatis vel glabratris, caulinis circa 9 confertis linearis-oblanceolatis 6–14 mm. longis subtus lanatis supra glabris vel glabratris, apice plano scarioso glabro 1.5–2 mm. longo lanceolato vel anguste deltoideo; involucre femineo hemisphaericus 7 mm. alto 12–13 mm. lato (in specimine siccato) basi lanato; bracteis 5-seriatis valde imbricatis oblongis obtusis, exterioribus fuscis cum apice breve stramineo, interioribus cum apice elongato scarioso stramineo munitis.

¹ Fernald & Wiegand, *RHODORA*, xiii. 23, 24 (1911).

Dwarf, 3-4.5 cm. high, monocephalous, humifuse; the assurgent stolons very short, not perceptibly elongated: basal leaves oblanceolate, mucronate, 8-14 mm. long, 2.5-3.5 mm. wide, glabrous or glabrate above, loosely lanate or glabrate beneath; the caudine about 9, crowded, linear-oblanceolate, 6-14 mm. long, lanate beneath, glabrous or glabrate above, with a lanceolate or narrowly deltoid glabrous flat scarious tip 1.5-2 mm. long: pistillate involucre hemispherical, 7 mm. high, 12-13 mm. broad (in the dried specimen), lanate at base: bracts in about 5 series, clearly imbricated, oblong, obtuse; the outer fuscous, with a short stramineous tip; the inner with a long obtuse stramineous tip.—LABRADOR: without definite locality, coll. by members of the *Unitas Fratrum* (TYPE in Gray Herb.); Okkak, Weitz.

Related to *A. alpina*, var. *monocephala* (DC.) T. & G. and to *A. glabrata* (Vahl) Greene, but differing from both in the conspicuously imbricated involucre with obtuse paler bracts; those two boreal plants (both occurring also in northern Labrador) having the linear-attenuate bracts uniformly dark-colored and of nearly equal length. It is noteworthy that this involucral character of *A. pygmaea* was recognized by Steetz, who, upon one of the specimens made the note: "Distinguitur facilime a varietate *monocephala* Ant. *alpinae*: involucri squamis interioribus obtusis, scariosis, nec acuminatis, coloratis." *A. pygmaea* is the plant referred to by Gray, in the *Synoptical Flora*, as *A. carpatica*, "a monocephalous form!" In its small rosettes of leaves and its involucre, it is, however, quite unlike *A. carpatica* or any of its known allies.

A. straminea, n. sp., planta humifusa, stolonibus foliosis perbrevibus vel paulo elongatis (ad 7 cm. longis); foliis basilaribus spathulatis subacutis vix mucronatis 5-12 mm. longis 2-4 mm. latis supra albidis tomento denso minutoque; caule florifero 3-14 cm. alto gracile remote folioso; foliis caulinis 8-10 linearibus 6-14 cm. longis 1-2 mm. latis, mediis attenuatis apice subulato fuso, superioribus apice linearie scarioso; capitulis femineis 1-7 plerumque dense corymbosis hemisphaerico-campanulatis basi rotundatis; involuero 5.5-7 mm. alto 4.5-8 mm. lato (in specimine siccato); bracteis 4-6-seriatis valde imbricatis, exterioribus ovatis vel oblongis brunneis basi paulo lanatis apice tenue chartaceo stramineo obtuso vel subacute, mediis oblongis apice deltoideo obtuso vel subacute stramineo, interioribus apice lanceolato eroso stramineo; achaenii glabris; stylo flavescente deinde brunneo.

Plant humifuse, the leafy stolons very short or slightly elongated (up to 7 cm. long): leaves of the rosettes spatulate, subacute, barely mucronate, 5-12 mm. long, 2-4 mm. broad, white above with dense fine tomentum: flowering stem 3-14 cm. high, slender, remotely leafy: caudine leaves 8-10, linear, 6-14 mm. long, 1-2 mm. wide;

the median attenuate to a dark subulate tip; the upper with a linear searious tip: pistillate heads 1-7, usually in a close corymb, hemispheric-campanulate, rounded at base: involucre 5.5-7 mm. high, 4.5-8 mm. broad (in the dried specimen), with 4-6 series of very distinctly imbricated bracts: the outer bracts ovate or oblong, brown, slightly lanate at base, with a thin chartaceous stramineous obtuse or subacute tip; the median oblong, with a deltoid obtuse or subacute stramineous tip; the inner with a lanceolate erose stramineous tip: achenes glabrous: style yellowish, becoming brown.— NEWFOUNDLAND: turf-y and (calcareous) rocky crests, Twillingate, July 20, 1911, Fernald, Wiegand & Bartram, no. 6340 (TYPE in Gray Herb.); limestone barrens near sea-level, Pointe Riche, August 4, 1910, Fernald, Wiegand & Kittredge, no. 4140.

A. straminea strongly simulates *A. alpina*, var. *cana* Fernald & Wiegand in its small white foliage but in its involucre is very different, *A. alpina* and its varieties having much larger pistillate heads with long attenuate subequal very dark bracts. *A. straminea* in its foliage and inflorescences also suggests *A. neodioica*, var. *rupicola* (Fernald), discussed below, but that has the larger cream-colored bracts less imbricated and the larger basal leaves with a longer mucro at tip and covered with a much thinner and sparser pubescence.

***A. subviscosa*, n. sp.**, planta dense humifusa ramis prostratis subligneis interdum 4-5 dm. longis, stolonibus confertis; foliis basilaribus spathulatis obtusiusculis vix mucronatis vel breviter mucronatis 0.5-1.5 cm. longis 2-5 mm. latis dense albido-tomentosis; caule florifero 0.5-1.5 dm. alto omnino albido-tomentoso supra glanduloso-hirsuto; foliis caulinis 7-10 tomentosis, inferioribus linear-i-oblanceolatis mucronatis 1.5-2.5 cm. longis, superioribus linear-i-attenuatis apice pubescente subscarioso subulato vel involuto; capitulis feminineis 3-9 dense vel laxe corymbosis; involucre turbinato-campanulato 5-6.5 mm. alto; bracteis circa 3-seriatis, exterioribus 3-4 mm. longis oblongis subherbaceis virescentibus vel stramineis interdum roseo-tinctis basi glanduloso-viscoso apice tenue obtusiusculo gilvo vel roseo-tincto, interioribus angustioribus acutiusculis.

Plant densely humifuse, the trailing branches subligneous, often 4-5 dm. long; stolons very short and crowded: leaves of the rosettes spatulate, obtusish, scarcely mucronate or with a short mucro, 0.5-1.5 cm. long, 2-5 mm. broad, densely white-tomentose: flowering stems 0.5-1.5 dm. high, white-tomentose throughout, glandular-hirsute above: caudine leaves 7-10, tomentose; the lower linear-oblanceolate, mucronate, 1.5-2.5 cm. long; the upper linear-attenuate, with a subulate or involute subscariosus pubescent tip: pistillate heads 3-9, densely or loosely corymbose: involucre turbinato-campanulate, 5-6.5 mm. high: bracts about 3-seriate; the outer 3-4 mm. long, oblong, subherbaceous, greenish or stramineous, often rose-tinged,

glandular-viscid, with a thin obtusish cream-colored or rose-tinged tip; interior narrower, acutish.—QUEBEC: limestone and limestone-conglomerate ridges from Point aux Corbeaux to Cap Caribou, Bic, July 8, 1907, *Fernald & Collins*, no. 1195 (TYPE in Gray Herb.).

Some material of *A. subviscosa* was distributed as *A. neodioica*, var. *gaspensis* Fernald; but that plant has a prominent mucro at the tip of the rosette-leaves, the upper caudine leaves with a more scarious tip and not at all glandular, and the glandless involucre 8–10 mm. high, with the very thin bracts linear or linear-attenuate and never tinged with pink. *A. subviscosa* is nearest related to the western *A. rosea* (Eaton) Greene and *A. microphylla* Rydberg, from both of which it is quickly distinguished by the glandularity of its upper leaves and inflorescence; its usually fewer heads, with broader and fewer bracts; and its ordinarily fewer caudine leaves, with less pronounced scarious tip. At Bic it was found on a cold north-facing limestone wall, where it was associated with several other localized species: *Carex concinna* R. Br., *Draba hirta* L., *Arabis Holboellii* Hornem., *Potentilla nivea* L., etc.

A. CANADENSIS Greene, var. *spathulata*, n. var., formae typicae habitu statura, etc. similis; foliis basilaribus cuneato-spathulatis vix petiolatis apice rotundatis 1–2.3 cm. longis 4–9 mm. latis; capitulis paucis; bracteis lineari-oblongis apice albescente.

Similar to the typical form in habit, stature, etc., but with the basal leaves cuneate-spatulate, scarcely petioled, rounded at summit, 1–2.3 cm. long, 4–9 mm. broad: heads few: bracts linear-oblong, with whitish tip.—NEWFOUNDLAND: rocky bed of South Arm River, Holyrood, August 23, 1894, *Robinson & Schrenk*; sandstone ridges and banks, Rushy Pond, August 11, 1911, *Fernald, Wiegand & Darlington*, no. 6362 (TYPE in Gray Herb.); damp talus of limestone sea-cliffs, Pointe Riche, August 4, 1910, *Fernald, Wiegand & Kittredge*, no. 4143.

In *A. canadensis* of Canada and the northeastern states, the basal leaves are of an oblanceolate or narrowly obovate outline, pointed at tip, and constricted below to a petiolar base. All three collections of *A. canadensis* from Newfoundland, from three remote districts, are uniformly different from the true form of the species in the outline of the basal leaves and seem to represent a well-defined geographic variety.

A. NEODIOICA Greene, var. *rupicola* (Fernald), n. comb. *A. rupicola* Fernald, *RHODORA*, i. 74 (1899).

In its best development *A. rupicola* is distinguished from *A. neodioica* by its much narrower basal leaves, the more numerous and greener caudine leaves, and the heavier or firmer cream-colored or

yellowish mostly oblong involucral bracts. The plant has heretofore been recorded only from the slaty ledges along the Mattawamkeag River in Aroostook County, Maine; but in 1911 it was found in profusion, by Messrs. Wiegand, Bartram, Darlington and the writer, upon the slate and sandstone ledges below the Grand Falls of the Exploits River in Newfoundland and in some abundance on rocks and headlands at other points in eastern Newfoundland. Along the Exploits River both *A. neodioica* and *A. rupicola* are in the greatest abundance and it was there evident that, though very distinct in their extremes, they present numerous transitional tendencies. Since all the *Antennarias* yet found in Newfoundland are strictly pistillate, with the single exception of the unique *A. eucosma*, the transitions can scarcely be explained as of hybrid origin and it seems wisest to treat *A. rupicola* as an extreme variety of *A. neodioica*. Another interesting extension of its range is furnished by a collection of var. *rupicola* from the rocky shore of the Onaman River in the Thunder Bay District of Ontario, where it was secured by Mr. H. E. Pulling in the summer of 1912. The known area of var. *rupicola* now extends from eastern Newfoundland to northern Maine and northern Ontario.

A. PETALOIDEA Fernald, var **subcorymbosa** (Fernald), n. comb.
A. neglecta, var. *subcorymbosa* Fernald, Proc. Bost. Soc. Nat. Hist. xxviii. 246 (1898).

When first put forward as a variety of *A. neglecta*, this plant was known only from a single station on Mt. Desert Island, Maine; and it was distinguished from *A. neglecta* by its very tall flowering stems and by "heads loosely subcorymbose on elongated pedicels, the lowest sometimes 6 cm. long: involucral bracts nearly all acute, the inner long-attenuate." Subsequently, when the northern representative of *A. neglecta* with corymbose heads, *A. petaloidea* Fernald,¹ was described, *A. neglecta*, var. *subcorymbosa* was included in it. But during the succeeding fifteen years, while a large amount (about 75 numbers) of *A. petaloidea* and its var. *scariosa* Fernald² has accumulated, the original sheet of *A. neglecta*, var. *subcorymbosa* has not been matched in certain characters, which were not at first noticed as peculiar. In true *A. petaloidea*, with the involucral bracts with petaloid white tips, the basal leaves are spatulate and decidedly rounded at summit, and the caudine leaves extend remotely but regularly to the inflorescence. In var. *scariosa*, with the long-attenuate involucral bracts very scarious

¹ Fernald, *RHODORA*, i. 73 (1899).

² Fernald, l. c.

(not petaloid) and lustrous, the basal leaves are somewhat oblanceolate and acutish, and the cauline, as in true *A. petaloidea*, extend regularly to the inflorescence. In the original Mt. Desert sheet of *A. neglecta*, var. *subcorymbosa* the basal leaves are oblanceolate and acutish as in *A. petaloidea*, var. *scariosa*, but the involucral bracts have petaloid tips as in true *A. petaloidea*. In the Mt. Desert plant, however, the leaves extend half or two-thirds up the flowering stem, above which point the stem is naked or nearly so until just below the inflorescence, giving the corymb a long-peduncled aspect.

This nearly naked summit of the flowering stem is of interest because in the only Newfoundland *Antennaria* yet known with elongate creeping stolons this character reappears; and the Newfoundland material, though with larger leaves and ordinarily longer pedicels, has the outline of the basal leaves and the texture of the involucre exactly as in the original of *A. neglecta*, var. *subcorymbosa*. Similarly, the only material of this group yet known from Nova Scotia, a fine suite of specimens collected by Mr. Harold St. John at Sunny Brae, Pictou County, is quite like the Mt. Desert and Newfoundland plants in its details; and, as indicated by the field-experience of Mr. St. John and the writer during June and July of the present year, the commonest *Antennaria* on the eastern half of Prince Edward Island is quite like the Mt. Desert and Nova Scotian plant and they all belong with the northern *A. petaloidea* rather than with the more southern *A. neglecta*. This pronounced variant with acutish leaves, tall flowering stems (3-4.5 dm. high) nearly or quite naked for a long distance (commonly 10-15 cm.) below the inflorescence, long pedicels (the lowest commonly 2.5-17 cm. long), and somewhat petaloid involucral bracts, is, then, the representative of *A. petaloidea* along the southeastern border of its range, from Mt. Desert Island to Prince Edward Island and Eastern Newfoundland.

GRAY HERBARIUM.

A NEW COCHLEARIA FROM NEWFOUNDLAND.

S. F. BLAKE.

COCHLEARIA cyclocarpa, n. sp., a basi ramosa caulibus multis adscendentibus 11–24 cm. altis; foliis rosulae deltoideo-ovalibus integris vel leviter sinuato-dentatis basi truncatis vel cordatis 1–1.5 cm. longis latisque, petiolis 5–8 cm. longis; foliis caulinis inferioribus ovalibus vel oblongis obtusis sinuate paucidentatis in petiolos marginatos angustatis vel subsessilibus 1.5–2.5 cm. longis, superioribus sensim minoribus plerumque hastate 3–5-dentatis vel rare ovalibus integris leviter amplectentibus; racemis 2–10 cm. longis; pedicellis patentibus vel adscendentibus 5–15 (plerumque 7) mm. longis; sepalis oblongis 2 mm. longis; petalis albis obovatis 3 mm. longis ad medium in unguiculum angustatis; siliculis valde reticulatis vix inflatis rotundatis vel depresso-rotundatis 5–7 mm. longis latisque; seminibus in quoque loculo 6 longitudine 1.5 mm.; stylo in ovario 0.5 mm. in fructo 0.8 mm. longo.

Branching from the base, with many ascending stems 11–24 cm. high: leaves of the rosette deltoid-oval, entire or slightly sinuate-dentate, truncate or cordate at base, 1–1.5 cm. long and wide; petioles 5–8 cm. long: lower caudine leaves oval or oblong, obtuse, sinuately, few-toothed, narrowed into margined petioles or subsessile, 1.5–2.5 cm. long; the upper gradually smaller, mostly hastately, 3–5-toothed or rarely oval and entire, slightly clasping: racemes 2–10 cm. long: pedicels spreading or ascending, 5–15 (commonly 7) mm. long: sepals oblong, 2 mm. long: petals white, obovate, 3 mm. long, narrowed at the middle into a claw: siliques obviously reticulated, scarcely inflated, round or depressed-orbicular, 5–7 mm. long and wide: seeds 6 in each cell, 1.5 mm. in length: style 0.5 mm. long when young, 0.8 mm. long in fruit.—NEWFOUNDLAND: wet conglomerate limestone and calcareous sandstone cliffs and ledges, Cow Head, 23 July, 1910, *Fernald & Wiegand*, no. 3467 (TYPE in Gray Herb.); moist sea cliffs, Western Head, New World Island, 20 July, 1911, *Fernald, Wiegand & Bartram*, no. 5480; Baccalieu Island, Barred Islands, and Fogo Island, Notre Dame Bay, 1902, 1903, *J. D. Sornborger*.

This species, which is most closely related among described species to *Cochlearia anglica* L., as which it has been passing in American literature, differs from that plant in its circular less reticulate pods, its smaller frequently cordate basal leaves, much shorter style, and smaller flowers. In *C. anglica* the rosette-leaves are ovate or oval-oblong, large, cuneate or often rounded or sometimes truncate into the petiole, the pods are ellipsoid and typically much larger (rarely

one or two of the lower ones suborbicular), the style is mostly much longer (1-2.2 mm. long), and the petals are generally about 6 mm. long and much more conspicuous than in *C. cyclocarpa*.

LONDON, ENGLAND.

PASPALUM IN EASTERN CONNECTICUT.—*Paspalum psammophilum* occurs on both banks of the Shetucket at Baltic, in the town of Sprague, a station reported by Dr. C. B. Graves in the recent Connecticut Catalogue. This species grows here on dry, coarse gravel, which in many places is nearly destitute of other vegetation. It becomes fully prostrate about September 1st, when the culms of a vigorous plant radiate over a circular area from 1. to 1.5 meters in diameter. After visiting this station in early September, 1913, I took the trolley down the river, stopping first at Versailles, three miles south. The same *Paspalum* was abundant here on the dry gravelly banks of the river. The next stop was at Taftville, two miles farther south, where a brief search revealed the same species growing in fine sand. My plan had been to follow the Shetucket to its entrance into the Thames at Norwich, some three miles beyond, but with a shower threatening, it seemed advisable to return.

There is a fine station for *P. circulare*, a few miles west of Sprague, in the adjoining town of Franklin. This station is on the banks of the Yantic, another tributary of the Thames. The soil here is a moist rich alluvium, quite unlike the dry, barren sand and gravel of the Shetucket, on which *P. psammophilum* was collected.

The stations mentioned are of interest as showing the two species following up the rivers from the coast. Baltic, the most northerly station, is twenty-two miles from Long Island Sound, or eight miles from Norwich, the head of the Thames, which is a tidal stream. The station on the Yantic is three miles above Norwich. Specimens have been deposited in the Gray Herbarium.—R. W. WOODWARD, New Haven, Connecticut.



RUPPIA MARITIMA AND NORTH AMERICAN VARIETIES.

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